Comparison of Two Different Treatment Modalities on a Bilateral Congenital Choanal Atresic Case

Bilateral Koanal Atrezı Vakasında İki Farklı Tedavi Yönteminin Karşılaştırılması

Choanal Atresia

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Özet

Biz bu çalısmada; bilateral konjenital koanal atrezisi olan bir hastada iki farklı tedavi yöntemini karşılaştırdık. Burun tıkanıklığı ve bilateral rinore şikayeti ile kliniğimize başvuran 5 yaşındaki kız çocuğuna yapılan nazal endoskopik muayenede koananın bilateral oblitere olduğu saptandı. Koanal atrezi transnazal endoskopik yaklaşım kullanılarak tedavi edildi. Endotrakeal tüp stent sağ koananın içine yerleştirilirken, sol koanaya stent konulmadı. Ameliyattan iki yıl sonra yapılan endoskopik muayenede koananın her iki tarafında da darlık saptanmadı. Bilateral konjenital koanal atrezi burun tıkanıklığına neden olur ancak yenidoğan dönemi sonrasında oldukça nadir görülür. Trans-nazal endoskopik yaklaşım etkili ve güvenli bir cerrahi tekniktir. Aynı hastada stent konulmasının veya konulmamasının özellikle doku iyileşmesi konusunda fark yaratmaması bize çok değerli bilgiler vermektedir. Ancak tek bir hasta kesin sonuca varmak için yeterli değildir. Bu konuda yapılacak daha büyük serili çalışmalar bize yön gösterecektir.

Anahtar Kelimeler

Nazal Obstrüksiyon; Koanal Atrezi; Stendleme

Abstract

We report the comparisn of two different treatment modalities on a bilateral congenital choanal atresic patient. The nasal endoscopic examination of a 5-year-old girl who had nasal obstruction and bilateral rhinorrhea revealed bilateral obliterated choanas. The choanal atresia was corrected using the transnasal endoscopic approach. An endotracheal tube stent was inserted through the right choana while no stent was used for the left side. Two years after the operation, an endoscopic examination revealed no stenosis in either side. Bilateral congenital choanal atresia is rarely among the reasons for nasal obstruction in the postneonatal period. The transnasal endoscopic approach is a safe and effective surgical technique. As there will be no differences such as tissue healing factors, comparison of stenting and non-stenting on the same patient provides us with valuable information. However a single patient is not sufficient to arrive at a decisive conclusion. Studies conducted in the future on a large number of cases will provide us with more information.

Keywords

Nasal Obstruction; Choanal Atresia; Stenting

DOI: 10.4328/JCAM.4126 Received: 20.11.2015 Accepted: 08.12.2015 Printed: 01.01.2016 J Clin Anal Med 2016;7(1): 132-4
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Introduction

Choanal atresia is a unilateral or bilateral obstruction of the posterior choana which provides the connection between nose and nasopharynx [1]. It was first described by Johann Roderer in 1755 [2]. The incidence of choanal atresia is 1 in 5000-8000 live births with female predominance of 2:1. Unilateral atresia is two times more common than bilateral atresia. Obliteration may be complete or incomplete with bony or mixed bony-membranous plates. It may be associated with congenital anomalies in 10 to 50% of cases; the most common one is Charge syndrome [3]. Symptoms can vary from a mild breathing difficulty to a severe breathing obstruction that could result in death. Although some patients are oligosymptomatic, the classical clinical finding of bilateral congenital choanal atresia in neonates is cyclic cyanosis in which breathing discomfort is relieved only when the child cries [1,3]. In rare cases, the newborn can compensate for the breathing difficulty by learning mouth breathing. Unilateral atresia may not be detected for years and may present later as rhinorrhea and unilateral nasal obstruction [1,7]. Since Emmert performed the first surgical correction of atresia by transnasal introduction of a curved trochar in 1854, several surgical techniques have been described [3]. In this paper we report a rare case of bilateral congenital choanal atresia of a 5-year-old girl treated surgically by the transnasal approach.

Case Report

A 5-year-old girl who had an adenoidectomy two months earlier was consulted to our clinic with persistent nasal obstruction, growth retardation, and bilateral rhinorrhea. The nasal endoscopic examination revealed bilateral mucopurulent secretion and bilateral obliterated choanas. Computed tomography showed bilateral mixed type choanal atresia (Figure 1). The patient had iron deficiency anemia which was treated with iron replacement preoperatively. The obliterated atresia was corrected using the transnasal endoscopic approach. The surgery was performed under general anesthesia. After oral endotracheal intubation, the nasal mucosa was packed with cotonoid pledges soaked in oxymetazolin 0,05% for 5 minutes before starting the surgery. The endoscopic approach was performed using a 4 mm 00 telescope. A curved incision about 1 cm in length was made over the posterior part of the nasal septum overlying the vomer. The mucoperiosteal flap was laterally elevated. The etretic bony plate was exposed. The bony plate was then perforated in its inferomedial part using a suction tube by applying limited force. The perforation formed was carefully enlarged by a diamond drill. A size 4 endotracheal tube stent was inserted through the right choana while no stent was used for the left side. The stent was removed 8 weeks after the operation and the evaluation was performed with computed tomography in the sixth month (Figure 2). Postoperative follow-up was done with endoscopic examination every three months for the first year and every six months for the second year. Two years after the operation, endoscopic examination revealed no stenosis in either side of the nasal cavity (Figure 3).

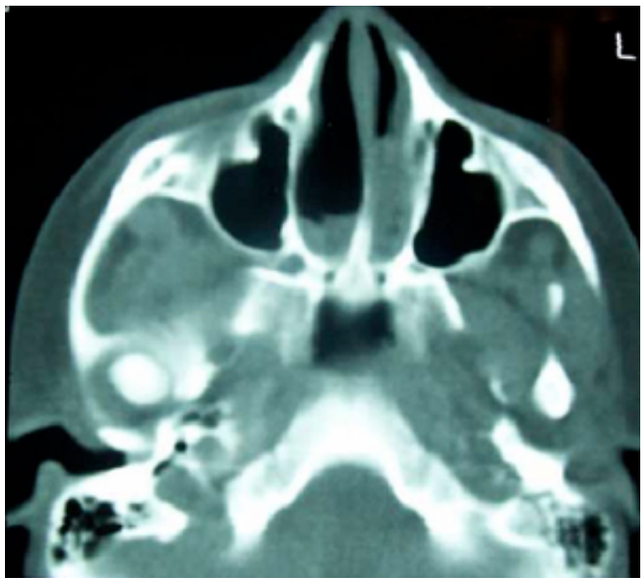

Figure 1. Preoperative axial paranasal sinus CT showing bilateral congenital choanal atresia.

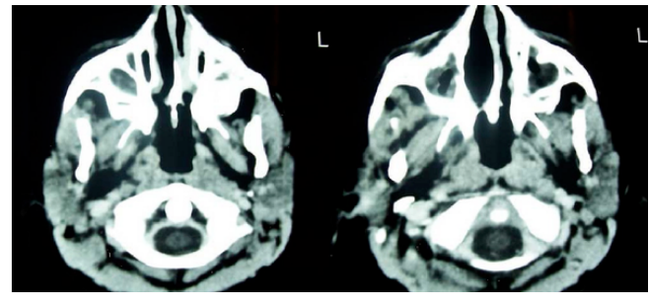

Figure 2. Axial paranasal sinus CT six months after the operation.

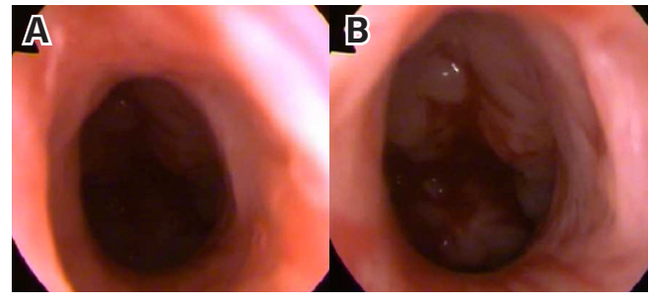

Figure 3. Nasal endoscopic view two years after the operation. A: Right choana B: Left choana

Discussion

BCCA has been reported rarely except in infants [3]. As newborns use nasal breathing in the first three weeks of their lives, BCCA is an emergency in which early surgical intervention is necessary. In these patients an oral airway is lifesaving and the diagnosis can be easily made with the passage of a catheter through the nasal cavities of the neonates. We think that our case was one of those rare cases where the infant could compensate for the breathing difficulty by adapting to mouth breathing. On the other hand, she had growth retardation and anemia due to malnutrition. She reached her normal weight six months postoperatively. The treatment of BCCA is surgery. Surgery can be performed via transnasal, transseptal, transpalatal and transantral approaches [2]. Transnasal endoscopic technique is the most common approach because it is less traumatic, faster, and causes minimal blood loss [7]. For a clear visualization and for managing BCCA more easily, many techniques for transnasal repair are recently described [7]. El-Ahr et al. described an endoscopic transnasal surgery technique, be-

ginning with removal of the posterior part of the nasal septum. Then the surgery could be done more easily by admitting the instrument from one nasal passage and endoscopy through the other passage [4]. Ibrahim et al. also removed the post part of the septum and used the 'four hand technique' [5]. Hassan et al. described combined a transoral-transantral approach in the repair of BCCA [6]. Bozkurt et al. suggested that, mitomycin seems to improve the surgical outcome of CA and reduce the rate of restenosis significantly without any complications [7].

In these reports most of the patients were infants. As our patient was 5 years old, her nasal passages were wide enough for the use of a telescope and surgical instruments. Therefore we did not need to use the 'four hands technique'.

Some authors used stents after surgery. Endonasal stents are left for 6-12 weeks to prevent restenosis [6,7]. However there are published reports showing that procedures without stenting are also safe and effective [4,5]. Durmaz et al. present the results of 13 patients and made a meta-analysis of similar studies in literature. The mean success rate with transnasal endoscopic repair was 85.3% in a total of 238 cases in 20 studies. The present meta-analysis failed to show any significant difference between the use and non-use of intranasal stent in terms of the postoperative restenosis rate [8].

In our case, the transnasal endoscopic approach was performed and an endotracheal tube stent was inserted only through the right choana. Two years after the operation, an endoscopic examination revealed no stenosis in either side. Although one case is not enough to evaluate whether insertion of a stent is necessary or not, it is important to observe the result in the same patient as there will not be differences such as tissue healing factors.

Conclusion

BCCA with nasal obstruction may present in older ages only rarely. The transnasal endoscopic approach is a safe and effective surgical technique. As the tissue healing factors are excluded, comparison of stenting and non-stenting on the same patient provides us with valuable information. However, a single patient is not sufficient to arrive at a decisive conclusion. Studies conducted on a broad case series would be informative.

Competing interests

The authors declare that they have no competing interests.

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How to cite this article:
Gür ÖE, Özel HE, Kaymakçı M, Boztepe F, Gün T. Comparison of Two Different Treatment Modalities on a Bilateral Congenital Choanal Atresic Case. J Clin Anal Med 2016;7(1): 132-4.